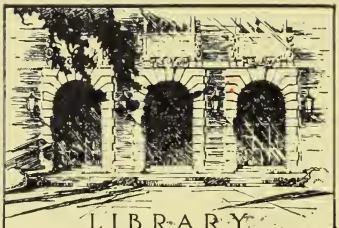

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INSTITUTE OF AERONAUTICS
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MUNICIPAL AIRPORT MANAGEMENT

By Leslie A. Bryan

UNIVERSITY OF ILLINOIS BULLETIN

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Aeronautics Bulletin — Number One

MUNICIPAL AIRPORT MANAGEMENT

BY

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FOREWORD

THIS MONOGRAPH is the first of a series of service bulletins on aviation which will be issued from time to time by our Institute of Aeronautics. It is particularly timely because of the recent Federal Airport Act. Furthermore, it has more than a temporary significance, since the problems involved in municipal airport management and operation will be of importance for years to come.

The author is the Director of the Institute of Aeronautics at the University of Illinois. In his previous work, as Director of Aviation for the State of New York, consultant to national and local planning bodies, and a fixed-base flight operator, Doctor Bryan has been in intimate contact with the problem concerning which he writes.

GEORGE D. STODDARD
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MUNICIPAL AIRPORT MANAGEMENT

INTRODUCTION

Types of Airports. Airports can be classified in a number of different ways. One of the most frequently used is according to flying activities and individual community needs. Included in this category are:

1. Airports built primarily for the operation of personal aircraft.
2. Airports designed primarily for industrial purposes and fixed-base operations.
3. Airports used primarily by scheduled air carriers.
4. Airports owned by the Federal Government for the exclusive use of its military and research establishments.

A somewhat similar classification is used by the Civil Aeronautics Administration. They group airports as follows:

1. Special airports built to serve special purposes and not directly concerned with public transportation. These include military fields and those built by private companies such as flight schools and aircraft manufacturers.
2. Cargo airports which handle cargo only. They will become necessary when the volume of freight increases to such an extent that terminal airports can not accommodate it.
3. Airports for private flying limited to personal aircraft owned by private fliers.
4. Terminal airports served by scheduled airlines. The terminal airport in any major city will be limited eventually to the activities of scheduled air traffic. Terminal airports in other cities will have mixed types of flying activities. In all cases, the design of a terminal airport is centered about the requirements of scheduled airline operations.

Another subdivision frequently made is according to ownership and administration. This classification includes:

1. Private and commercial airports. These are owned and operated as private or public ventures by individuals, companies, clubs, or associations.
2. Municipal airports. Ports of this type are built and operated by cities, towns, counties, or other local government units.
3. Miscellaneous airports. These include principally the military ports owned and administered by the United States Army, Navy, Marine Corps, National Guard, and organized reserve forces.

It is the second type, the municipal airport, that is of immediate concern to municipal officials.

Trend to Municipal Ownership. Since about 1934, the trend in larger airports has been toward municipal ownership and

operation. This has been due largely to the practice of limiting the use of public funds for airport purposes to public agencies only. The Federal Airport Act of 1946 will accelerate the trend toward municipal ownership. There has been also a public acceptance of airports and the functions thereon as community necessities and, in some communities, as public utilities. This attitude has sprung in part from the realities of war as well as from a realization of the benefits which accrue to municipalities from an airport.

Airport Benefits. The benefits which accrue to a town or city from a municipal airport are almost limitless. One tangible and immediately noticeable benefit is the employment created both directly and indirectly.

Probably more important are the benefits created by the availability of transportation by air to both individuals and industries in the area served. Not the least of these benefits is the ability of the community's industries to fill orders or to receive shipments sooner than a competitor. Additional benefits, derived from the rapid transportation of personnel and mail by air and through quick contact with consumers, suppliers, agents, and branch offices, are many.

From an economic point of view the municipality profits, particularly from the terminal-type airport, not only from the tangible benefits of the availability of air transportation but also from the intangible benefits of a social or prestige nature. A city with an outstanding airport is recognized as a progressive city. Of additional benefit is the value of an airport to a city in times of national or local emergency. In this sense the airport is important not only to the individual citizen or family but also as an emergency standby.

The advantages of the airport are obviously not limited to commercial users alone; from a social and economic point of view, the port becomes a tangible asset to the city. It is axiomatic that the introduction of a new and important method of transportation will affect the life of a municipality in all of its aspects. It follows that airports deserve the support of a considerable outlay of tax-derived funds, if necessary, to keep them operating.

FEDERAL AIRPORT ACT

Financial Aid. Municipalities contemplating new airport projects, or certain types of expenditures on their existing facilities, may be aided in achieving desired results through the financial aid provided for in the Federal Airport Act of 1946. This Act authorizes appropriations of up to $500,000,000 for airport aid, over a seven year period beginning July 1, 1946. The maximum yearly expenditure is set at $100,000,000. Of the total amount 25 per cent is to constitute a discretionary fund to be handled by the Civil Aeronautics Administrator; the remaining 75 per cent is to be apportioned to the states on the population-area basis. The $500,000,000 is to be matched by a similar amount to be provided by the states or local sponsors, thus giving a total airport program of $1,000,000,000.

Federal aid for the development of Class III or smaller airports is fixed at 50 per cent of the allowable cost of the project. Larger projects may receive an amount appropriated by the Administrator not to exceed 50 per cent of the allowable cost. Class IV and larger airports must have the approval of Congress, upon recommendation of the Administrator, before financial allocation can be made to them.

Sponsor Procedure. Any public agency, or two or more acting jointly, may submit a project application. In many cases the community will act jointly with the state aviation authority, particularly in those states where state aid will be granted. In some cases the application must be submitted through the proper state aviation authorities. The Civil Aeronautics Administrator is responsible for administering the Act. Project sponsors, however, will deal directly with the district Civil Aeronautics Administration offices.

When applying for Federal aid, project sponsors must agree to observe the following requirements:

1. The airport will be available at all times for public use.
2. It will be suitably maintained and operated.
3. The aerial approaches will be adequately cleared.
4. The airport will be available to United States Army and Navy aircraft without charge, except for a reasonable proportionate share of ordinary costs.

5. Space will be made available rent free to the Federal Government for weather reporting activities, and so forth.

6. Accounts and records will be kept in accordance with standards prescribed by the Civil Aeronautics Administration.

7. Airport operators will submit annual or special reports to the Civil Aeronautics Administrator.

8. Airport records will be available at all times for inspection by the Civil Aeronautics Administration.

Nine major steps are required of a sponsor who is interested in participating in the Federal-Aid Airport Program:

1. The location of the proposed airport must be included in the then current National Airport Plan. This is done by the CAA, after careful study of the country's aeronautical needs. Funds can be earmarked for local use.

2. A city, county, or state must file a project request on Form ACA 1623 through the CAA's District Airport Engineer, to have a given project included in the coming year's program. This does not necessarily obligate the CAA to program a project; nor is the applicant bound by these preliminaries.

3. If a project is selected, the CAA makes a tentative allocation, advising the sponsor or applicant on Form ACA 1641, and forwarding it through the appropriate District Airport Engineer.

4. A project application using Form ACA 1642 is filed with the CAA's District Airport Engineer by the sponsor or the applicant.

5. The "Sponsor's Assurance Agreement" (Form ACA 1642) must be executed by the sponsor.

6. The CAA, if satisfied that all regulations have been met, approves step 4 as outlined above.

7. The Civil Aeronautics Administrator then makes an offer, on Form ACA 1632, to pay the United States' share of the cost.

8. If such offer is acceptable to sponsor or applicant, a grant agreement (Form ACA 1642) is then executed.

9. The sponsor then proceeds to perform all necessary construction work, adhering to the CAA's standards, policies, and procedures.

Preliminary Planning. Airport sponsors should undertake the following planning in preparation for the submission of their projects:

1. Applicants should prepare complete briefs outlining the history of each project, including its exact topographical location, cost of land, date purchased and from whom, present owner, amount of purchase price unpaid, if any, distance and direction from town.

2. Applicants should also prepare maps, plans, and specifications for proposed projects. A detailed report should cover all pertinent factors. It should point out why an airport the size applied for is necessary; why

hard surfaced runways are needed instead of turf or earth stabilization; why the particular location has been chosen; and any other information that will aid in processing the application once it has been formally presented.

A further important point is that project sponsors in metropolitan areas must submit, not merely plans for an individual project, but an area airport program. When the over-all program for an area has been approved, then sponsors can file applications for individual projects.

In applying for Federal aid for improvements to existing airports, sponsors should describe their airports fully. All facilities, improvements, and occupants should be listed. In addition, a complete financial statement should be prepared showing the cost of operation and the amount of income derived from the existing airport.

Project Costs. The project costs which are shared by the Federal Government include any costs involved in accomplishing a project, such as those for field surveys, preparations of plans, supervision of construction work; acquisition of land, easements through airspace; construction, improvement, repair, and alterations of a public airport or ports including administration buildings; and elimination of, or marking of, airport hazards. The construction, alteration, or repair of airport hangars is not included.

Costs generally will not be allowed unless they are incurred subsequent to the agreement between the sponsor and the Administrator, are in conformity with approved plans, and are reasonable in amount. Some preliminary costs, such as those for the field surveys and preparation of plans, would necessarily have arisen before a project could be formulated and submitted for approval. Costs of this type may be considered allowable if incurred subsequent to passage of the Act.

FORMS OF OPERATION

Municipal Operation. The first problem facing a municipality, once it has its airport, concerns the operation of the airport. The best thinking in most cases advises municipal operation of municipally-owned airports.

The basic principles of business administration tend to become obscured when new projects must be fitted into a plan of municipal activity. Inasmuch as municipal airport operation is a public business, procedures for conducting that business must conform to the principles of public administration. It is not possible, except by legislative act, to disassociate the airport management from the normal city government channels. In the usual situation, the city council is the legislative body which controls the airport and airport expenditures, while the city mayor has general administrative supervision of the airport department and is responsible for its operation.

An airport is a government function of the public utility type in that it is a service which is so indispensable to the public, and so far removed from control by competition, that its operation may be said to be in the public interest. On that ground, it is subject to more direct government administration than usual. It follows that a municipal airport may best be managed by an independent municipal department. Under such circumstances airport operations may be assigned to an existing municipal department or a separate department may be set up. In either case, an executive head and a workable type of organization are needed to do the job required. To be successful, any airport, regardless of its type of administration, must be comprehensively planned, functionally designed, economically constructed, and soundly administered.

The Airport Lease. The alternative to the municipally-operated type of airport management is to lease the port to a private operator. The essential characteristic of this type of operation is the leasing of the airport to an individual, or a partnership, or corporation, to operate in return for a rental on a fixed sum basis or on a percentage arrangement. This form of operation is the quickest way to start activities on a new airport. It makes for a minimum of municipal supervision and may be, in the early stages particularly, cheaper for the municipality.

An operator, when a lessor, being in business for himself, is usually inclined to expect too much from publicly-owned airports. He may believe that he should be completely protected against encroachments of itinerant operators and that the serv-

ices he provides should be reciprocated by low charges. On the other hand, the community feels that its burden of maintenance costs should be eased by the operator as a result of the operator's income-producing use of the tax-provided airport facilities.

Because of these divergent viewpoints, it becomes particularly important from the standpoint of both the operator and the municipality to use great care in drawing up the lease or contract between the municipality and the operator. There are no standard form leases and comparatively few instances of outright leasing of large municipally-owned airport facilities to a single operator.

In considering the advisability of this system, the first thing which must be realized is that airport operation and airport management are not necessarily the same thing. Management should always be retained by the community, either through a salaried manager, the city council, an official airport committee, a commission, or some other method. By this means the community's interest will be represented in everything that has to do with the use of the airport — all matters of maintenance and all matters of revenue.

Occasionally it has been found effective to have an operator act also as airport manager. If this method of operation is selected, the city should enter into an operating contract with a good, responsible operator. A contract is preferable to a lease, since a lease implies an estate in the airport property, and certain rights and controls might be assumed that were not intended.

Contract Provisions. The contract should set forth specifically the privileges and obligations of the contractor as an operator, and also his duties as airport manager for the city, if such is the case. The first contract should be of short duration, preferably one year, and during this period of time the compensation to the operator as manager might well approximate his payments to the city for use of the field and its facilities.

The contract should also provide that, if, at the termination of the contract, the operator's services and operation have proved satisfactory, he will be granted a new contract on terms acceptable to both parties, for a longer period of time, say three years.

The contract should provide for arbitration of disputes and termination by either party if the other party refuses, after sufficient notice, to comply with the terms of the contract. Such arbitration should be in accordance with the provisions of the arbitration statutes of the jurisdiction. The contract should not be transferable without the consent of the city.

The portion of the contract pertaining to the contractor as operator should require him to observe all existing Civil Air Regulations of the Civil Aeronautics Administration pertaining to the airworthiness of aircraft and the certification of airmen. He should be required to keep the premises clean, neat, and sanitary at all times, to provide sufficient planes to accommodate the business at the airport, and to keep sufficient gasoline and oil on hand to supply the normal demand at the airport. He should agree to give visiting airmen preference over local activities, to operate the airport without discrimination, and to charge the public for services prices that are fair and reasonable, in accordance with prices charged at similar or like airports, subject to approval and review by municipal authority.

The payments for field use, hangar or building rental, and from sale of gasoline and oil should be stipulated. The operator should be required to maintain an attendant at the airport during operation hours, and to pay for the utilities used in connection with his business. The city should agree to maintain the airport and facilities as landlord, and to assist in advertising and promoting the development of the airport.

As manager, the operator should compile and post a set of field rules, including an air traffic pattern. He should submit to the proper municipal authority a statement each month showing the expenses and the revenue of the airport. The city should authorize the operator, as manager, to furnish transportation and other courtesies to air visitors when emergencies arise, or when requested to do so by the city, on a reimbursable, actual expense basis.

In conclusion, it should be stated that the intent of an operator-manager contract should be the granting of maximum security to the operator without exclusive rights. However, during the period in which the airport will provide only enough

business for one operator, the contractor should be protected against unfair and irresponsible competition.

It is believed that the maximum security for the operator-manager can best be accomplished by establishing fixed charges for the use of the airport facilities for commercial purposes and requiring compliance with all Civil Air Regulations. These stipulations should eliminate irresponsible competition. Substantial payments to the contractor as manager will give him an advantage over all legitimate competition as long as he continues to operate in a satisfactory manner. The contract could include a clause stating that the city will not grant any other operator the use of the field on more favorable terms than those included in the operator-manager contract. The municipality further has the responsibility of paying the airport manager a fair salary. Authority must be given the airport manager to operate on a sound business-like basis.

MUNICIPAL RESPONSIBILITY

To Users. The municipal airport owner has a dual responsibility — (1) to the users and (2) to the citizens. In many instances the citizen and the user may be the same person. To the user, the municipality has the duty of seeing that commercial operators on the airport conduct efficient and intelligent operations, and give high-grade service at a reasonable price. Included, of course, among the users are the air carriers. Their services are not only of great importance to the patrons of the service, but the fees paid by the carriers are one of the most substantial sources of revenue to the airport.

To Citizens. To the citizens of the community as owners of the airport, the municipality has the duty of seeing that all operation and management problems are taken care of as far in advance as possible. Even before that, management officials should have explored the questions of the necessity for construction, the site selection, the financial arrangements, the traffic potentials, and possible future expansion. Regardless of the size or location of the airport, the functioning principles of good management are the same. The private airport is operated

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and managed like any private concern. The municipal airport is operated and managed by the officials charged by law with such responsibility.

Airports, in time, can be profitable both to the municipalities owning them and to the fixed-base operators conducting business on them. Tried and proved business programs should ensure the financial success of the airport. However, cooperation among all the elements in a community is necessary to the full advancement of every municipal airport. A coordination of thinking and planning between the airport officials, commercial operators, the Civil Aeronautics Administration, and all other interested persons, will prevent mistakes.

Once a municipality has acknowledged its role as a landlord, three things in particular should take place immediately in the handling of the secondary commercial activities which attach themselves to airports:

First, the municipality should take a long range point of view toward current operation costs. These, of necessity, may have to be borne largely by the taxpayers until the airport business gets out of the pioneering stage.

Second, the municipality, in renting airport property, should be careful to write the leases so as to insure that, as the rental value increases, the city receives the benefits of increased income. Perhaps a license rather than a lease is a better device in some cases.

Third, the municipality should reserve the right to cancel for cause leases which are of long duration.

TYPES OF ADMINISTRATION

Forms of Control. An airport may be owned and operated in a number of ways. Among these are the following:

1. By the municipal, state, or Federal government.
2. By a committee of a public body.
3. By private companies or individuals as a private port.
4. By private companies or individuals as a public port.
5. By several air transport lines as a joint terminal project.

If the airport is administered by the municipality, one of three general forms of administration probably will be used:

1. It may be placed under an already existing department of the city government, such as the department of parks.

2. A new department may be established in the municipal government.

3. An independent commission, which may be bipartisan and selected by the mayor or an equivalent officer, may be in charge. The commission then selects the airport manager, who is directly responsible to the commission rather than to the city government.

Department Management. Just as there is no uniformity in the forms of administrative control, so there is no uniformity in the municipal departments responsible for the control and the management of the municipal airport. In municipalities where the airport is relatively unimportant, or where a number of strong departments are already in operation, or for other reasons, good administration often results in assigning the airport to an existing department. This has been done in New York City where airports are operated under the Department of Marine and Aviation. Among other departments to which airport operations may be assigned are the Department of Public Works, as in Newark, New Jersey; the Department of Parks, as in Syracuse, New York; the Department of Public Utility, as in San Francisco, California; the Department of Public Service, as in Dayton, Ohio; or the Finance Department, as in Memphis, Tennessee. Conversely, in many large cities the airport problem has become so complex that it has been found desirable to establish a separate department or separate commission with departmental powers to handle airport matters.

It is probably true that the relative success of a municipal airport operation depends more on the personnel involved than on the structural form of the organization. Even where the personnel is most competent, inevitable restrictions on the handling of public property tend to diminish the effectiveness of capable management.

The inadequacies, if existing, of airport administration by a municipal department usually are attributable to fundamental differences between the kind of managerial action required for effective airport operation and the kind that can be achieved within the legal structure of local government. Airport management in its present stage represents a relatively new type of enterprise, requiring administrative efforts and risk-taking quite dissimilar to other municipal activities.

In most cases, municipalities should retain control and operation of their airport facilities only if they are willing and able to engage the services of an efficient business man to operate the port. The airport manager should be given full control of expenditures on an annual budget basis and, of course, be freed from political influence.

Municipal airports are not always under the control of civic departments. Some ports are operated by separate municipal corporations established under the laws of the States and not connected in any direct way with the local, city, or county governments. Occasionally, municipal airports are operated under state jurisdiction. This is the case with the Boston Airport.

Aviation Commissions. Airport or aviation commissions, as a form of airport administration, are usually city commissions and are not uncommon. In general, the aviation or airport commission is of a mandatory rather than an advisory type. Such commissions must take the responsibility of coordinating all actions and decisions on financial budget and policy matters with the airport manager, to the end that the airport services and benefits to the community will be the greatest possible.

Under the commission form, the manager's general responsibilities are little different from his duties under the department setup. He carries primary responsibility with respect to submitting a general budget, distributing expenditures, collecting revenues, and supervising the day-by-day airport activities. Sometimes the city forms a joint commission with the county. Such a form is in use at Pittsburgh, Pennsylvania.

Chambers of Commerce. An airport, especially in a smaller community, is managed occasionally by the chamber of commerce, or some similar civic organization, acting directly or through a special committee or other agent. Since chambers of commerce are primarily engaged in promotional activities, it often happens that the promotion of an airport development by the chamber of commerce leads to the subsequent management of the airport by that body. In a few instances, municipalities have leased their airport facilities to their chambers of commerce for operation.

Airport Authorities. A final type of administration is the

airport authority. Where municipal financing involves credit problems which an independent authority can better meet, the airport authority is particularly advantageous. It has advantages also where the airport services an area embracing several political jurisdictions. Obviously, neither of these conditions is particularly common.

The airport authority in general tends to provide a freedom of action and continuity of management which other forms of administration may not provide in the same degree. On the other hand, an airport authority may weaken public control and lead to political domination and incompetency. An airport authority may, in some situations, add only to the present complexity of a large number of uncoordinated public bodies. Like the other types of administration, the success of the authority is largely dependent upon the employment of a manager who is capable, prudent, and aggressive.

MANAGEMENT DETAILS

Department Structure. If, as in the majority of cases, the management of the airport is in the hands of a department of the city administration, the following essentials of management structure should be observed:

1. The management of the department should be single and direct, and should be responsible to the city chief executive and city council.

2. The manager of the airport department should be appointed, and should be removable, by the city chief executive and the city council.

3. A definite line of responsibility and authority should be established for all interdepartmental positions.

4. Coordination of the airport department with other city departments should be the responsibility of the airport department manager.

5. The airport department should be operated as a separate municipal-institution business, and operating results should be presented in a form comparable with those of any other municipal utility.

Duties of the Airport Department. In small cities and villages the airport department may consist of only one, two, or three people. Nevertheless, the need for a basic line of authority and an allocation of responsibility is just as important in a small department as it is in a large department. A municipal airport department is concerned largely with the following duties:

1. Preliminary preparation of the municipal airport department budget in conjunction with the city's budget department.

2. Supervision of expenditures for the airport in accordance with the municipal airport department budget.

3. Supervision of maintenance of the airport and maintenance of city-owned buildings on the airport, in conjunction with the city's public works department.

4. Responsibility for the collection of fees, rents, and other revenues incidental to the operation of the airport.

5. Responsibility for initiating purchases for the airport, and for co-operation with the city purchasing department in the completion of such purchases.

6. Responsibility for negotiating the renting of airport property, subject to the limitation that the renting may be only such as will promote the use of the airport in the general public interest, and any other limitations that may be set up by the city council.

7. Responsibility for the recommendation of proper insurance for the city's protection from losses.

8. Enforcement of the provisions contained in leases and agreements between the city and tenants of airport leased property.

9. Supervision of the accounting methods to be employed by the city to reflect properly the financial affairs of the airport department.

10. Responsibility for developing all practical sources of airport revenue which would be in line with the general policies of airport financing, as set forth by the city's chief executive and the city council, and which would assist in developing the airport as a government agency.

11. Control of all flight activity on the airport.

12. Control of all general safety procedures on the airport.

13. Dissemination of all forms of airport ground information.

14. Assumption of responsibility for representing the city in contracts with all other government agencies concerned with aeronautical activities.

15. Responsibility for the transmission to the city's chief executive and to the city council of all general aeronautical information of importance in planning city policies.

16. Leadership in the fostering and the promotion of aviation activity and commerce in the community.

17. Checking to see that adequate service to the public is maintained.

THE AIRPORT MANAGER

Qualifications. The personal qualifications needed in an airport manager are those which any executive should have. The technical qualifications are not so well known. One large city recently set up the following technical, professional, and other requirements for its airport manager:

1. Citizen of the United States.

2. At least five years of responsible managerial, administrative, or executive experience in the field of airport management, aviation manufacturing, public utility management, commercial air transportation, military or commercial aviation operation, or in a large government operating department or staff agency.

3. At least two years of the five to be of a specialized nature in responsible airport management, administration, or regulation, such as director or assistant director of a large commercial metropolitan airport described by the Civil Aeronautics Administration as belonging to Class III or IV, or an equivalent aviation management experience of such scope and quality as to indicate the possession of the knowledge, skills, and abilities necessary to perform the duties of the position.

4. Education equivalent to graduation from a college or university of recognized standing. Each year of experience of either type 1 or type 2 above, in addition to the minimum, may be submitted for a year of the education lacking.

5. Good physical condition and free from disabling defects.

6. Knowledge of airport management and maintenance problems, procedures, and techniques.

7. A thorough knowledge of Federal and State laws, regulations, and ratings applying to airports, air traffic control, flight operation and airport use.

8. A good administrative knowledge of the engineering features of airport construction and equipment.

9. A good knowledge of aviation history, development, practices, and terminology, together with an interest in the scope and development of aviation.

10. Some acquaintanceship with the aviation and aeronautical industry in both its manufacturing and transportation phases.

11. The ability to plan an airport operation, maintenance, and development program, and to coordinate it with general government activities and policies and with aviation problems and development.

12. The ability to prepare manuals and regulations executing the program and to interest agencies and private enterprise concerned with aviation in the program.

13. The ability to analyze and assimilate a variety of data and to prepare attractive and convincing reports.

14. The ability to deal tactfully and effectively with public officials, the Board of Airport Commissioners, subordinates, and the public, and the ability to speak effectively in public.

Operator-Manager. In cases where the airport is leased to a commercial operator, who at the same time is to act as airport manager, it is recommended that a provision be included in his lease or agreement with the municipality to the effect that the airport must be operated in accordance with the standards set

forth in the agreement. Leases of this nature probably should not be of long duration, since the growth of aviation in a community will be in proportion to the effectiveness of the management. In event of unforeseen bad management, a short term lease offers the best safeguard.

Included in such a contract or lease should be the following provisions with respect to the maintenance of operating standards:

1. All rules and regulations pertaining to the operation of the airport must be observed, continuous infraction to result in cancellation of the lease or contract.

2. All buildings and grounds held by the operator must be maintained in an attractive and serviceable manner, as established by the airport's management.

3. Each piece of equipment must be maintained according to the best safety standards or, in the case of aircraft, according to the standards established by the CAA, and must be adequately insured.

4. A standard accounting system must be maintained and kept open for inspection by the airport's management.

5. Standards of courtesy and service must be maintained by all employees of the operator.

6. A minimum number of personnel must be kept on duty at all times, depending on the nature of the operation.

7. Any operator applying for a lease or contract to operate from the airport must, upon acceptance by the airport's management of his bid for operation, establish a bond to insure compliance with the contract or lease.

Duties. In summary form the duties of the airport manager may be listed as follows:

1. Planning and directing of airport maintenance and operation.

2. Supervision of the planning and direction of improvements and future expansions.

3. Maintenance of pleasant and orderly working relationships with tenants and patrons.

4. Operation of the airport in accordance with sound business practices.

5. Maintenance of runways, taxi strips, aprons, field area, fencing, lighting, roads, parking lots, hangars, administration buildings, and equipment.

6. Understanding and appreciation of the purpose and functions of the airport, and of how these are to be attained.

7. Familiarity with airport operation, safety requirements, and various regulations pertaining to aviation.

8. Arrangement and maintenance of proper coordination and cooperation among the various interests using the airport.

9. Responsibility for the over-all management of the airport.

10. Direction of the activities of all other airport employees.

11. Supervision of all administrative functions of the airport, giving full consideration to the gaining of revenue for the city through the medium of direct revenue as derived from airline companies, fixed base operators, concessions, and so forth.

12. Supervision of the negotiations of contracts with operators and concessionaires.

AIRPORT REVENUES

Sources. Sources of revenue depend upon the position of the airport in the community, its size, attractiveness, service, ability to produce patronage, and other factors. In general, the revenue sources and their productivity are valued roughly as follows:

1. Hangar and storage, 25%
2. Gas and oil, 25%
3. Other rentals, 19%
4. Landing fees, 19%
5. Concessions, 8%
   (Higher at air terminals)
6. Commissions and other incomes, 4%

The following outline shows a more detailed table of the sources of airport revenue under three main classifications.

1. Rentals
   a. hangar
   b. ground
   c. office
   d. factory
   e. lockers
2. Concessions
   a. gas and oil
   b. restaurant and bars
   c. repair shops
   d. accessory sales
   e. hotel facilities
   f. shops
   g. farming
   h. parking
   i. ramps
   j. vending machines
3. Field Fees
   a. lights
   b. commercial operation
   c. charter services
   d. airlines
   e. military

Obviously, many of the above sources of revenue are not available at all ports. On the other hand, the more facilities provided at an airport, the greater the public's patronage and, consequently, the greater the revenue. It is further true that there are very few concessions or places of business located at a terminal-type airport that cannot be conducted equally well at the non-terminal airport.

Municipalities should adopt the following attitudes toward the secondary commercial activities which attach themselves to their airports:

1. A long-range point of view should be taken toward current airport operation and maintenance costs which may have to be borne largely by the taxpayers until the airport becomes self-supporting.

2. Care should be taken in renting airport property or concessions to write lease agreements so as to insure increased rents as the rental value of airport property increases.

3. Protection from inefficient operators should be assured by reserving the right to cancel any lease, for cause, upon payment of the lessee's depreciated capital investment in the buildings constructed on the airport property, or upon other arrangement. This is necessary inasmuch as ground leases for airport property will need to be of long duration so that buildings constructed by lessees can be amortized.

Space Rentals. Rentals of airport hangars, land area, office space, and similar facilities are increasing and will continue to increase because of the growing congestion on existing airports, coupled with the lack of new fields. Government-leased space should be charged for on the basis of the current rates, rather than for a rental of a dollar a year, or something similar. Current annual space rental rates at airports at present run from fifty cents to three dollars a square foot. If ground space is leased for construction purposes, the lease should provide for adequate construction standards and maintenance responsibility.

Rental of ground space, upon which lessees will erect storage warehouse and garage buildings, should be on a specific rent basis under the provisions of a standard term ground lease. Among the factors to be considered in arriving at the annual rental figure for outlying buildings are:

1. Location with respect to the administration building.
2. Access to the landing area and taxiways.
3. Access to the entrance or auto parking area.
4. Present value of the land on which the airport is located.
5. Acreage available for buildings.
6. Improvements on the landing area.

Leases for hangar lots upon which lessees are to construct buildings might cover the following points:

1. Naming of the parties to the lease and description of property.

2. Terms of lease, amount or method of determining rent, amount and time of payment of rent, and provisions for renewal.

3. Provisions covering the specific use of the property.

4. Provisions for the approval by the lessor of plans and specifications of structures to be erected.

5. Provisions covering the maintenance of the structures and property.

6. Provisions regarding the storage of inflammable material.

7. Provisions stipulating lessee liability accruing from the erection of structures and the use of the premises.

8. Provision for the payment of all taxes, assessments, and so forth.

9. Provision against subleasing, and so forth, without the consent of the lessor.

10. Provision for the carrying of fire and liability insurance by the lessee.

11. Provision for the protection of the city against liens.

12. Provisions for cancellation and termination of the lease.

13. Provisions for cancellation and termination of the lease of structures erected by the lessee during the lease period.

Hangar Rentals. Some of the things to be considered in determining the cost of hangar rentals, where the field charge is estimated separately, are the following:

1. Base hangar cost (including aprons).

2. Maintenance (physical upkeep of hangar).

3. Depreciation (based on a 10-year write off).

4. Overhead (management and help).

5. Operating cost (labor, heat, light, water, taxes, telephone, insurance, and so forth).

In the majority of cases a flat monthly rental charge is assessed, ranging from $5 to $100 per month per airplane. A sliding scale method should be developed eventually, based upon either the number of feet an airplane occupies or the wingspread footage of the airplane. The base rate is normally $1 to $1.25 per foot of wingspread, or around five cents per square foot. The actual rate depends upon the size of the airport, the kind of hangar, the amount of ship's hangar service, and the competitive situation.

Charges on overnight hangar storage also may be estimated by the above method, the average charge being from $1 to $5. Overnight tiedown privileges for transients are usually from fifty cents to $2, although some fields make no charge. Tiedown charges are usually not assessed if the field permit system is used. If such system is not used, the tiedown privileges at small ports are usually assessed at from $3 to $5 per month.

Percentage Leasing. A further generality is that office rents, for the most part, should be equal to rents charged for the use of business property of similar value located elsewhere. The total of the receipts forthcoming to a city in the form of rent should be an amount equal to that sum which is a proper rent charge for the volume of business enjoyed by the lessee. Such a result can best be obtained by "percentage leasing." Obviously, it should not be applied to rental of office space, which should be on the analogous-space basis — so much per square foot.

A percentage lease is one in which the rent for business property is determined each year by the volume of the lessee's sales. It is usually written with a minimum guaranteed rent. As in other types of leases, the percentage lease should be written with care as to the selection of the property's best use, care in the lessee's selection, and with provision for termination in event of the failure of the lessee to meet minimum standards of quality. The latter qualification is not so difficult in leasing a concession, building, or space. It becomes more difficult when the property rented is land upon which a lessee will construct a building. Such leases are bound to be of longer duration, and should provide some predetermined methods of adjustment with the lessee in event of termination previous to the contract term.

Concession Policies. Very few, if any, airport managements throughout the country have reached similar conclusions with regard to concessions. Some grant no concessions at all. Others prefer to lease space and sell concessions to private operators. Most airport managements tend to reach a compromise between the two extremes, depending upon local conditions and the type of airport. No matter what the decision, the airport management should always keep control provisions in all agreements, including provisions for terminating the agreements if lessees do not operate in accordance with the standards of good airport administration.

Concessions may provide a very important source of income. Most of them imply exclusive rights to the contractor, with payment either on a flat annual fee basis, on a sliding scale, or on a percentage basis dictated by receipts. The following is a list of suggested rental percentages.

Storage	30-40%
Repairs	3-5%
Accessories	6-9%
Services	4-6%
New Planes	1-1½%
Gasoline	1-1½¢ per gal.
Oil	3-5%
Passenger Flights	8-10%
Cafeterias	5-8%
Lunch Stands	8-10%
Soft Drinks	9-12%
Table Service	7-10%
Candy & Confectionery	8-10%
Cigars & Cigarettes	6-8%

Flight Operator Charges. One of the most difficult problems is to determine charges to be assessed against operators who are engaged in such activities as student training, ship sales, charter service, and plane renting. The operator needs an office, hangar space, and field use. The price charged him may be figured separately for hangar, office, and field permits, or combined in one flat monthly charge. A simpler system is to charge a straight percentage on total business done, approximately 10 per cent to 15 per cent.

It is customary to assess definitely higher daily charges against operators in comparison to monthly charges. This is for the purpose of preventing itinerant operators from using the field during weekends or holidays, and thus taking business away from the regular operators. At one municipal airport the field use permit is on the basis of $25 per year a passenger seat, and was originally assessed at the request of the operators, to accomplish the above purpose. Other methods of fixing revenues from operators include assessing a flat charge per mile flown, or a flat charge per month per plane.

Landing Fees. There are very few locations in the United States where fees are charged to private fliers for the use of the airport landing areas. The Civil Aeronautics Administration has consistently opposed the charging of landing fees, since they have felt that such practice would prove a detriment to the widespread use of the airplane. In the cases where such charges are made, they are usually on a flat fee basis with the fee determined by the size

of the aircraft or on a similar basis. Air carriers engaged in commercial operations should pay reasonable landing fees, arrived at by negotiation between the municipality and the carrier. In the past, such fees have varied from a nominal fee to a reported high of $225 per month per schedule. Landing fees are to be distinguished from other charges, such as field permits, tiedown charges, or field use fees.

AIRPORT EXPENSES

Expense Ratios. The American Municipal Association, in a survey of municipal airports, arrived at the following percentages of major airport expenses with, however, considerable variation noted among the several reporting ports.

Total Salaries	53%
Field Area	7%
Light, Heat, Power	8%
Field Lighting	6%
Hangars	5%
Runways	5%
Field Rent	4%
Insurance	3%
Taxes	1%
Automatic Traffic Control	1%
Miscellaneous	7%

In setting up a budget, estimates may be made by using similar percentages of yearly appropriations or of estimated revenue. Budgets may be set up yearly, semi-annually, or quarterly to take care of variations which may develop. A thorough and carefully prepared budget, properly published, has not only the fiscal advantages of budgets in general, but has also the additional advantage of impressing upon officials and the public alike the fact that the airport is an integral part of the local government.

In general, the major items of an operation budget include:

1. Salaries.
2. Motor fuel, oil, and maintenance of service vehicles.
3. Electricity for light and power.
4. Water, gas, fuel oil, and so forth, used in buildings.
5. Telephones, special lines, teletype, and so forth.
6. Normal maintenance of existing facilities.
7. Improvement of, or additions to, existing facilities.

8. Provision for machinery and equipment.
9. Additions to machinery and equipment.
10. Expansion of facilities planned for the year ahead.
11. Fire protection.
12. Insurance.
13. Taxes.
14. Miscellaneous fixed charges, depreciation, and so forth.

Airport Accounting. Airport accounting applies good accounting principles to the specialized field of airport operation. The axiom, that every business requires an efficient accounting system as a method of controlling its financial affairs, is equally true of airport operations. Satisfactory systems for municipal airports may be set up by any reputable firm of accountants specializing in airport accounting or using the suggested standard airport accounting procedures designed by the Civil Aeronautics Administration.

The specific purposes for which accounts can be kept are:

1. To locate and aid in preventing wasteful or inefficient operating practices.
2. To determine, control, and reduce the costs of operation.
3. To discover and assist in eliminating unprofitable operations.
4. To provide cost knowledge on which to base charges.
5. To provide performance records.
6. To assist in financing and credit.
7. To estimate prospective traffic and revenues.
8. To keep management informed with respect to the financial condition of the operation.
9. To furnish a basis for necessary reports.

A typical system consists of two main features — the Chart of Accounts and the Financial Statement.

The Chart of Accounts has been designed to provide all of the accounts, ordinarily required for the proper recording of transactions and the development of necessary information, to permit a detailed analysis of the business. The requirements peculiar to the individual business have been considered by allotment of sufficient unused account numbers in each group to permit expansion by adding needed accounts.

The Financial Statement consists of the following four sections:

1. The Balance Sheet. This is the conventional type, with recognition given to the assets and liabilities peculiar to fixed-base operations.
2. The Profit and Loss, or Operating Statement discloses Sales, Cost of

Sales, Gross Profit, Expense and Operating Profit for the business as a whole and for the following departments: new aircraft, used aircraft, flight, service, parts and accessories, and line.

Spaces are provided for two additional departments, such as restaurant or recreation facilities, and so forth, whether operated by the business or rented as a concession. Miscellaneous Earnings and Deductions from Income, Provision for Income Taxes and the Final Net Profit are not allocated to departments, but are shown for the entire operation.

3. The Analysis of Expense lists the amount of each kind of expense in total. Each expense account can be allocated to the department responsible, or can be prorated to the various departments.

4. The Analysis of Sales, Cost of Sales, and Gross Profit show the total amount of each of these items for the period, with subtotals shown for each of these items for the period, with subtotals shown for each department. A column is provided to show the percentage of gross profit for each class of sale.

Persons interested in municipal airport operation will find the following books and pamphlets of great value.

Bollinger, Lynn L., Passen, Alan, McElfresh, Robert C., *Terminal Airport Financing and Management,* Harvard University, Boston, 1946.

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Glidden, Horace K., Law, Hervey Fuller, and Cowles, John E., *Airports: Design, Construction, and Management,* McGraw-Hill, New York, 1946.

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